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Educating educators in the selection, design, and utilization of educational media

Abstract

Today, as in the past, there are various factors affecting education and calling for changes. Firstly, there is a constant influx of technology and materials into educational and training systems. Secondly, the characteristics and needs of learners are changing. Finally, the problems affecting both learners and educators are increasing. Rather than passively accepting change, Ways (1964) has suggested that humans become active participants. For educators, this means altering instructional strategies to incorporate new mediums (Romizowsky, 1988). Educators need to have a voice and exercise control over the way in which messages are presented. In order to do so, educators need "supplementary training in the processes by which media are developed, improved and evaluated in order to arrive at sound evaluations of their relevance for...educational objectives..." (Briggs, Campeau, Gagne', and May, 1967)

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Educating Educators in the Selection, Design, and Utilization of Educational Media

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Educating Educators in the Selection, Design, and Utilization of Educational Media

CHAPTER I.

Introduction

Today, as in the past, there are various factors affecting education and calling for changes. Firstly, there is a constant influx of technology and materials into educational and training systems. Secondly, the characteristics and needs of learners are changing. Finally, the problems affecting both learners and educators are increasing. Rather than passively accepting change, Ways (1964) has suggested that humans become active participants. For educators, this means altering instructional strategies to incorporate new mediums (Romizowsky, 1988). Educators need to have a voice and exercise control over the way in which messages are presented. In order to do so, educators need "supplementary training in the processes by which media are developed, improved and evaluated in order to arrive at sound evaluations of their relevance for...educational objectives..." (Briggs, Campeau, Gagne', and May, 1967).

The purpose of this paper is to identify a means of providing the "supplementary training" suggested by Briggs, et al (1967). It outlines the content of a workshop which includes selecting, utilizing, and designing educational media. The organization of the paper is as follows: definition of terms, discussion of the effectiveness of educational media, analysis of factors affecting education, statement of the needs of educators, and identification of the content for a media workshop.

Definition of terms

Before going on, it is important to define the terms that will be used.

Educational technology involves applying learning theories to identify and solve problems. It includes a number of resources--people, materials, equipment, and facilities.

Educational media is included in educational technology and refers to the actual hardware (i.e. computers) and software (i.e. textbooks) used by educators. The terms educational media and educational materials will be used

interchangeably.These include materials that provide supplementary information, such as handouts, and also those that teach the information, such as interactive video.

Media Effectiveness

The effectiveness of instructional media has been shown in many studies and educational situations. Chance (cited in Schramm, 1977) reported that the section of a class viewing transparencies did significantly better on a final exam, expressed overwhelming preference for using them, and saved an average of 15 minutes teaching time per class.

Howe (1967) reported that media can help raise the incentives and capabilities of the disadvantaged, help higher education reach more people, and help to refine the learning process itself. Phillips (1966) reported that instructional effectiveness increased with programmed instruction and that the use of media ruled out gender biases of an instructor. Pettersson (1988) reported that presentations with a combination of mediums are better than one medium alone.

CHAPTER II.

Analysis of Factors Affecting Education

Due to the changing needs and characteristics of learners, there is a demand for more individualized instruction. Students are facing problems of increasing complexity at home and in other non-school settings. Educators have to work harder to reach students. Research suggests that educators appeal to individual differences in students (Burns, 1967). This includes differences in the learning and information processing styles of learners. Research on perception and learning indicates that learners learn through a variety of modalities. Pettersson (1988) reported that in a study of U.S. schoolchildren, 30 percent process information visually, 25 percent auditorily, 15 percent through kinesthetic methods, and the remaining 30 percent through a combination of these methods. With learners processing information through all of these modalities, it is important for educators to appeal to all these senses. It is necessary to choose teaching materials designed to incorporate visual, auditory and tactile elements.

Another factor affecting education is its environment. An educational system operates within a society. It is influenced and changed by the attitudes and activities of that society. The changing structure of the family, political issues and attitudes, and technological advances all have an impact on education.

The environment affects education in other ways as well. School is not the only place that learners learn. Many outside sources--radio, television, movies--can add to the student's intellectual growth as well. By using these mediums in the classroom, educators can help students more effectively learn from the mediums outside the classroom.

CHAPTER III.

Statement of Educators' Needs

The selection of media is not an isolated event. It has to occur as part of the entire course-planning process. Selecting media is a matter of deciding which resource or combination of resources is appropriate for teaching what type of subject matter to what type of learner under what conditions to achieve what purpose (Anderson, 1988). According to Anderson, there are series of questions to be answered when making media decisions. Romizowsky (1988) reported that media decisions are based on factors other than the media characteristics (i.e. teacher-learner interaction) and therefore media selection should be included in the overall design of instruction. He has also outlined steps or series of questions for media selection, questions which have changed due to the expanding technologies available for education.

Media in and of itself does not guarantee instructional effectiveness. As Zenor (1987) has said, "We have seen in each of the last three decades technological advances that were supposed to revolutionize education fall short of reaching their potential. We must learn from the past. It takes far more than just hardware and materials to make improvements to education." It is the utilization of the technology that will determine its effectiveness. The technological advances can and should be used to improve the transmission of messages, but they cannot be used in isolation. Instructors need to be taught how to use media so that it does not present an obstacle to the student. It is the message within the medium that the student should be learning. The instructor should know the medium well enough to help the student interpret its meaning.

It is neccessary, then for educators to be educated to incorporate educational media into their teaching preparations and presentations. Doing so will help them utilize the changing technologies available for education and to address the changing needs and increased problems affecting learners. Therefore, educators need instruction in the utilization, design, and selection of educational media.

CHAPTER IV.

Implementation Plan

Educators will be given the proposed instruction on a remedial basis. It will be presented as a two-day workshop. The first day will center on the role of media within the curriculum, and the processes and information involved in selecting and designing educational media. The second day will include perception, learning, and design principles as related to the selection and design of educational media.

The morning of the first day will start with the instructor leading a group discussion centered on the questions: What is "good" instructional media? What is "bad" instructional media? What are the criteria for media effectivness? What is the role of media within education? The instructor will then show a slide program on the role of media within education. Following that will be a discussion on incorporating media into existing instructional settings.

The afternoon of the first day will focus on selecting and designing media. Learners will be given various examples of instructional media. They will be asked to critique them. Following that will be a discussion on the criteria used to evaluate media. After that the instructor will present lists of questions used in the selection of media. The instructor will suggest a hypothetical instructional need, and the students will go through the selection process to decide which medium(s) could be used.

The second day will begin with the instructor presenting information on perception and learning principles relevant to selecting and designing media. This will be presented in lecture format, with printed materials and overhead transparencies supplementing the instructor.

In the second part of the second day, a slide series will be shown to present basic graphic design principles. Learners will be given an opportunity to design instructional materials. The final activity will be the learners filling out questionnaires to evaluate the workshop. A more detailed description of the content follows.

Perception Principles

Perception is relative rather than absolute (Fleming and Levie, 1984). Individuals perceive images in relation to other images that are close in space or time. The size of an object, for instance, is relative to the size of other objects nearby.

Perception is also relative to immediate past experience. If the stimulation level of something that a viewer has just been exposed to is quite high, the stimulation of a following event will seem to be less because of the preceding stimulus (Fleming and Levie, 1984). For example, if a person views a videotape containing bright colors, fast-moving images, and loud music, then views another videotape, the second one will will seem less exciting.

Perception is selective. Bartley (1960) and Fleming and Levie (1984) state that individuals choose what to perceive. After first taking in all the surrounding stimuli, an individual will select certain elements to attend to. Perception depends upon prior knowledge of the situation, the interests/goals of an individual, and the general perceptual tendencies of an individual. Fleming and Levie have identified two terms related to perceptual selection. The first is "selective exposure." It refers to the fact that an individual chooses what to be exposed to. The second is "selective awareness," which refers to the fact that a viewer can attend to only certain aspects of a message at a time. A message could, in fact, compete with itself for a viewer's attention if it contains too many conflicting or distracting elements.

Perception is organized. Rather than looking at the environment as a chaotic disarray of lights, brightness changes, colors and images, an individual organizes his/her surroundings (Fleming and Levie, 1984). The individual imposes meanings, relationships and groupings on the images. The organization provides stability and is necessary for normal functioning. The organization also has a profound effect on the speed and accuracy of perception. For this reason many principles from Gestalt psychology have been utilized (Behrens, 1984; Dondis, 1973; Fleming and Levie, 1984).

Three of these "laws" have been identified by Fleming and Levie. The first

is the concept of figure and ground. It suggests that in a visual image there is a figure or unit which stands out from the background due to the unity of the elements in its form. This figure can be differentiated from the background in a matter of seconds (Behrens, 1984; Dember, 1960; Fleming and Levie, 1984; Taylor, 1960; Rosauer, 1990).

The second Gestalt law discussed by Fleming and Levie is that of closure. An incomplete figure will be mentally completed by the viewer. This act of completing or closing the figure is supported by the fact that the barest of figural representations have been accurately perceived (Behrens, 1984).

The final Gestalt law discussed by Fleming and Levie pertains to organization. The organization perceived is affected not only by the visual stimulus, but also by the perceiver's past experiences, interests and needs.

Perception is strongly influenced by what we expect or are "set" to see (Fleming and Levie, 1984). Expectations are such a pervasive influence on perception that they can influence what will be selected, how it will be perceived, and how it will be organized. The presence and strength of the set can influence the number of alternative interpretations that occur. A narrow or rigid set can impede discussion and free thinking. Set also plays a key role in determining interpretation of situations in which the sensory data are ambiguous and/or unfamiliar.

A message is perceived before it is learned (Fleming and Levie, 1984), and a message has to be noticed before it can communicate (Newcomb, 1984). Therefore it is important to know how to get a viewer's attention. Fleming and Levie have addressed this issue and have identified two stages of attention known as preattention and attention. Preattention is the largely peripheral experience of noticing all of the visual stimuli that are present. It is the "wide angle" of vision. With it individuals can see how all the elements in their environment relate to each other. Bartley (1969) also described a similar phenomenon.

Researchers have debated whether or not there is a limit to the capacity of the human mind (Bartley, 1969; Wickelgren, 1977). Wickelgren (1977) stated that the actual capacity of the human mind cannot be measured and that individuals are

constantly learning. He has said that it is not how much is learned, but what is learned that is important. Also, how well the concepts are learned can have a great impact on how long they are retained (Wickelgren, 1977).

Fleming and Levie (1984), in discussing the amount of stimuli that can be perceived, have stated that there is a definite limit. A learner who is presented with too much stimuli will become overwhelmed, impeding the learning process. However, a message that is well encoded and easily recognizable to the learner will make less demands upon the learner's perceptual processing and facilitate learning.

Fleming and Levie (1984) have also discussed the concept of single- and two-channel processing. Single channel means that the information is being presented to only one processing mode at a time, either verbal or visual. They have reported that perception and later recall using a visual mode have been extremely good.Studies have shown visual perception to produce results superior to that of verbal.

The verbal/auditory presentation of material has some inherent problems. In cases where the media is non-interactional or non-programmed, the information flows by the learner at an uncontrollable rate. The opportunity does not exist for the learner to go back and review the information. A second problem is the potential for verbal interference from outside noises--or even from the hardware of the message itself, such as glitches in the audio system (Fleming & Levie, 1984).

Two-channel capacity refers to the presentation of information to more than one processing mode. Fleming and Levie have recognized that while there is some controversy regarding multiple channel perception, there has been a great deal of support for its effectiveness. (Fleming and Levie, 1988; Bartley, 1969). The combination of verbal/auditory and visual stimuli allows learners to follow one track or the other, or both simultaneously (Fleming & Levie, 1984). This idea has been supported by Shores (1977) who has stated that learning will take place only when individual learners are presented with enough different stimuli that they can choose what is most meaningful to them. Also, media that are presented sequentially with little time in between can be considered to be multiple channel due

to the fact that there is an on-going processing of the information and the perceptual modes will overlap (Fleming & Levie, 1984).

Memory Principles

Wickelgren (1977) recognized the fact that the term memory has various connotations and uses. He has defined it to mean "a wide variety of changes in the nervous system that result from experience and can affect behavior." He has also made a distinction between physiological, behavioral and psychological memory. Within the area of psychological memory, there are also divisions between the visual-spatial and verbal types of memory. These all refer to a change in an organism, a change which Wickelgren has termed a memory trace (Wickelgren, 1977).

Fleming and Levie (1984) have identified five basic principles of memory. The first two relate to acquisition, the next two to consolidation, and the last one to testing and application of learning. Following will be identification and a brief discussion of each of the principles.

Leaning that is meaningful to the learner is acquired more readily and is retained longer than that which appears meaningless or arbitrary to the learner (Fleming and Levie, 1984). Studies have shown that learners will try to find something meaningful or familiar in the stimulus material that is presented to them. Even in material that is seemingly nonsense learners will use patterns of organization to try to gain meaning from the material. Mnemonic devices are a means of using this principle to facilitate leaning.

Learning to associate or relate 2 or more objects or events (stimuli and/or responses) is facilitated where they occur or are encountered in contiguity, i.e., close together in time and/or space (Fleming and Levie, 1984). This principle relates back to the perception principle of proximity. Just as elements close in proximity are perceived together, they are also remembered together. Designers of messages can exert a certain degree of power over their viewers by the manipulation of the arrangement of elements. They can suggest relationships and associations by grouping them in some way (Fleming & Levie, 1984).

Wickelgren (1977) considered acquisition to be the first of the three phases of the memory process. The second and third are storage and retrieval. He also recognized the importance of intelligently encoding information in a message to facilitate learning. When a learner recognized the stimulus presented, later recognition of the stimulus was markedly improved (Wickelgren, 1977).

Learning is influenced by the frequency with which the stimulus are encountered and the same or similar responses made (Fleming and Levie, 1984).This principle is similar to the idea that "practice makes perfect." There is much evidence to support the idea that repetition does indeed facilitate the consolidation of learning and knowledge. The kind of repetition and rate of spacing, however, can impact how effective the repetition can be. While repetition serves well for short-term retention, other processes (recoding, elaboration, transformation) are necessary for retention to occur over longer periods of time. While repetition can be effective in learning "meaningless" information or facts, i.e., multiplication tables, dates of events, etc., other processes in which the information is constantly used will put the information into long term memory, thus aiding retention (Fleming & Levie, 1984; Restle, 1975).

Learning is highly dependent upon its consequences. Where consequences for the learner are pleasant, interesting, tension reducing, useful, instrumental, rewarding, or informative, learning is more efficient and more lasting (Fleming & Levie, 1984). This principle deals with the idea of reinforcement. Although somewhat controversial, both positive and negative reinforcement have been found to have quite an effect on behavior. Designers can use it to incorporate positive feedback for correct or appropriate responses and negative or neutral responses for incorrect or inappropriate responses (Fleming & Levie, 1984).

Learning as a measurable entity varies not only as a function of conditions during acquisition and consolidation, as suggested above, but also as a function of the condition of testing or applications (Fleming and Levie, 1984).The evidence regarding the effectiveness of the instruction comes not only from the instruction, but also from the characteristics of the evaluation. There are different types of

evaluations which place different levels of demands upon the learner's ability to retrieve information. Also, there are aided and unaided evaluations. In general, aided evaluation (those which supply cues) are more efficient than unaided (those not supplying cues).

Design Principles

While some researchers believe that students can learn information from poorly designed materials, it is also true that motivation to learn increases with well designed materials (Bullough, 1988; Taylor, 1960). The effectiveness of the materials may suffer due to poor design, i.e., poor organization, too much material with lack of emphasis, etc.

The majority of writing regarding graphic design involves the discussion of design elements. Most designers suggest learning these as a start to learning graphic design, although Behrens (1984) has argued that it is best to teach the whole first and then examine the individual parts.These terms will be presented and suggestions made on how they can act as guidelines for designers of instructional materials.

While the elements of graphic design may be referred to by different terms, they are generally the same principles and elements used by all designers. Rosauer (1990) has listed the elements most commonly used. These are: color, shape,line, light, texture, pattern, perspective, point of view and angle, size, framing, motion, sequence and juxtaposition. The definitions compiled by Rosauer can be found in Appendix I. Bullough (1988) has compiled a similar list, but also included space, form and surface.

Graphic Design Principles

Besides the graphic design elements, Bullough (1988) discussed graphic design principles. These are "rules" or guidelines for using the elements, which are the building blocks of graphic design. He cautioned designers that the principles are not hard and fast rules to be adhered to explicitly. Rather, they are to be used to guide design and help designers create messages that effectively convey information.

The first principle is balance (Behrens, 1984; Bullough, 1988; Dondis, 1973; Nelson, 1983; Parker, 1989). This term refers to an equilibrium within the composition. There are two types of balance, formal or bisymmetrical, and informal or asymmetrical. Two items of equal size within a composition , one placed on either side of the center dividing line will create a balance. Informal or asymmetrical balance deals with objects in a composition that are not the same size and are not placed opposite one another. This type of balance deals more with "visual weights" than actual weights. Elements such as light, shape, color and space can make one object appear light or heavier than the other (Bullough, 1988).

The second principle is emphasis (Bullough, 1988; Newcomb, 1984; Parker, 1988; Parker, 1989; Taylor, 1960). Emphasis is the act of making one object or image in a visual stand out from the others. It is a means of letting viewer know what the most important aspect of the message is (Bullough, 1988).

Unity is the third principle (Behrens, 1984; Bullough, 1988; Dondis, 1973; Lichty, 1989; Lowry, 1988; Nelson, 1983; Parker, 1989). It refers to the ability of a composition to look as though it is one unit rather than a group of isolated objects. Many techniques have been suggested for achieving unity. Among them are: 1) overlap independent objects, 2) use borders to "fence in" separate objects, 3) use lines extending from one object to other, 4) repeat a shape or color (Bullough, 1988).

Contrast is the fourth principle (Bullough, 1988; Lichty, 1989; Nelson, 1983; Parker, 1988; Taylor, 1960; White, 1980). It refers to the characteristic of an object that makes it stand out from other objects. Taylor (1960) suggested that

when contrast is desired, the two contrasting objects should not only have features that are different from each other, but that these features should enhance the differences. Parker (1989) suggested that "high impact publications tend to have a lot of contrast."

Rhythm, the fifth and final principle, is the presence of repetition interspersed with variety (Bullough, 1988; Lichty, 1989; Newcomb, 1984). It is often achieved through the repetition of a certain shape, resulting in a pattern. It is necessary to interrupt the pattern or rhythm to prevent monotony.

CHAPTER V.

Evaluation plan

The instructors will be given an opportunity to informally evaluate the educational media workshop by filling out a questionnare immediately after the workshop. Some will also be interviewed for their reactions at that time. Follow-up interviews will be conducted at six months and one year later.

Questions included:

1. What information do you feel you would use to select, prepare or use media to enhance teaching?

2. What informtion will you not use?

3. Are you more likely to use media to present information or for independent student work than before you experienced the workshop?

4. Do you have any suggestions for further workshops?

CHAPTER VI.

Summary

To reiterate, the purpose of this paper is to suggest the content for a workshop for teaching educators to select, utilize, and design educational media. This is important because media can have far-reaching benefits for education. This can only come about, however, if the media is used in conjunction with other instructional strategies, and actually incorporated into the curriculum.

Appendix I

1) Color is the visual sensation that enables one to perceive various wavelengths of light in order to differentiate otherwise identical objects (Bullough, 1988; Dondis, 1973; Lichty, 1989; Lowry, 1988; Newcomb, 1984; Parker, 1988; Rosauer, 1990; Taylor, 1960; White, 1980). Light-response of vision to the different wavelengths of visible light that form a narrow band of the known spectrum of radiant energy (white light). Color has three basic properties: hue, value, and intensity,. The wavelength of light determines its color, also known as hue. Color's value is its lightness or darkness. The functions of color include: 1) to heighten realism by depicting actual color, 2) to point out similarities and differences, 3) to highlight important information, and lastly, 4) to create an emotional response. White light is made up of all wavelengths in the visible spectrum. The absence of light, and therefore color, is black. A color wheel contains all of the basic colors in the light spectrum. Red, yellow and blue are primary colors, colors that cannot be made by mixing any other color. Secondary colors are produced by mixing equal parts of the primaries. Intermediate colors, sometimes called tertiary colors, are those produced by mixing equal parts of the primaries and secondaries and are found between secondaries and primaries. Examples of intermediates are red-orange, green-blue, and blue-violet. The use of intermediate colors in conjunction with their primaries and secondaries will produce an analogous color scheme, which is any two or more colors which are neighbors on the color wheel. Complementary color schemes are those found opposite on the color wheel and will always include a primary and secondary color, i.e., red and green. They are the strongest color relations and lend strength to compositions.

Color has value which is its lightness or darkness achieved by adding white or black. These colors are commonly called tints and shades and make up what is called a monochromatic color scheme. One color, its tints and shades.

Color has intensity which is its brightness or dullness. Color intensity is achieved by adding the complement of that color. Color has a profound

psychological effect on the viewer. Warm colors are found on one side of the color wheel and include red, yellow, orange and their intermediates. Warm colors are bold and aggressive. They attract the eye and excite the emotions. Red is said to speed up the body's metabolism. Yellow is lively and reminds the viewer of sunshine, but tends to be overpowering when used in large quantities. Cool colors include green, blue and violet and their intermediates. They slow down body metabolism and are used as calming colors. They are clean and inviting. Purple is often associated with royalty, green with spring, and blue with sky and sea. Colors can also be soft, striking, dark, and bright. Color perception can be defined as the advancing and receding of certain color values when set against each other.

Shape is the next element of graphic design (Bullough, 1988; Dondis, 1973; Faruque, 1984; Lowry, 1988; Newcomb, 1984; Rosauer, 1990; Taylor, 1960). A line closed upon itself becomes a shape, or the visible make-up characteristic of a particular item. Shapes are two-dimensional outlines of forms, and form is the three-dimensional extension of two-dimensional shapes. Shape is associated with figure-ground relations. Selection of "figure" and "ground" will determine which shapes we perceive and understand as important when reading the unit as a whole. Shapes are the building blocks of composition and work together to create a meaningful whole. Shapes can be biomorphic, those which come from nature and typically are curvilinear; geometric, straight, hard-edged, regular and precise and are usually manmade; and irregular or amorphous shapes are those shapes which incorporate both biomorphic and geometric.

Line is the third graphic element (Bullough, 1988; Dondis, 1973; Faruque, 1984; Lowry, 1988; Rosauer, 1990; Taylor, 1960). A mark, straight or curved, generated by moving a point, which forms part of the formal design. Line is the basic structural network of composition. Lines are the invention of man in the perceived separation of two-dimensional structures which indicate boundaries between adjacent parts of three-dimensional objects. Lines have three properties; direction, variety, and width. Line often is used to create emphasis, suggest action, direction and movement. Line can divide or tie objects together. Lines indicate the

course of direction of objects in motion. Lines can give a sense of depth as in perspective. Three kinds of lines are: 1) horizontal, conveying a sense of restfulness and peace; 2) vertical, giving the perception of being alert and strong; and 3) diagonal, lines that generate energy and movement. Lines' variety can be curved, indicating soft gracefulness, straight and hard-edged for strong impact, limp or weak, and strong, smooth or sensuous. Lines have width from thick to thin.

Light is electromagnetic energy of various wavelengths, that part of the spectrum that stimulates the eyes and produces visual sensations (Dondis, 1973; Faruque, 1984; Lowry, 1988; Rosauer, 1990; Taylor, 1960). Figures are perceived as being either lighter or darker due to their color, reflectance properties, and background. Light can be real as in nature or implied as portrayed in a two-dimensional format. Light is affected by surface qualities of any material it strikes. Light can be transparent, a clear light which passes through; translucent, a filtered light; and opaque light which will not pass through. Light, as used in chiaroscuro create light and dark areas which contrast dramatically with each other.

Texture is the actual and/or visual feel of a surface (Bullough, 1988; Dondis, 1973; Faruque, 1984; Rosauer, 1990). A physical surface characteristic of an object that may be exaggerated or subdued by means of lighting. The visual (implied) or tactile (real) surface characteristics and appearance of a particular item. Texture can add a dimension of realism to the two-dimensional medium. Texture can give the appearance of weight and supply detail. In a two-dimensional medium, texture is simulated or implied to express to the viewer something that the viewer normally can only touch.

Pattern is a system based on the relation of separate parts (Faruque, 1984;Rosauer, 1990). The design made by repeating a shape or motif. Units placed in repetition or combination with other units. The arrangement of the elements of a picture. Pattern lends itself well to backgrounds and gains interest when it varies. The repeating of shapes, lines, textures, or colors in an organized rhythm or beat in the design. Patterns are strong visual forces that create harmony and unity.

Perspective defines space-in-depth (Rosauer, 1990; Taylor, 1960). The representation of three dimensions within two-dimensional surface. Perspective is often represented as sharp, clear foregrounds, and blurred, indistinct backgrounds. Perspective is created by variations of line, image size, overlapping of objects, tonality and focus. There are two main types of perspective: linear and aerial perspective. Linear perspective is based on the premise that objects become smaller as they move into the distance and converging lines are perceived as being parallel. In regard to size, the basic rule states that a distant object that appears to be equal in size to a nearby object would have to be larger. Aerial perspective is the illusion of depth created by brightness and textural gradients, color saturation and the manipulation of warm and cool colors.

Point of view and angle indicate scale and interpretation of the subject, whether envisioned at a high, low, or eye-level angle, and whether close or far away (Dondis, 1973;Faruque, 1984;Newcomb, 1984;Rosauer, 1990). Eye-level conveys realism and the world as we normally see it. A low angle portrays objects as dominant, powerful, and larger-than- life. High angles reduce or diminish objects and portray them as small or insignificant.

Size, in perspective, refers to the apparent diminution of objects as they move farther from the viewer (Faruque, 1984; Newcomb, 1984; Nelson, 1983; Parker, 1988; Rosauer, 1990; White, 1980). In perspective, the near objects are larger than far objects. More attention is attracted to objects that are large. Objects of the same relative size make them appear close together.

Framing is the selection and placement of certain elements within the frame by selective angle of view or placement of foreground objects to distinguish the subject from its background (Bullough, 1988; Newcomb, 1984; Rosauer, 1990). Framing is often achieved by effectively contrasting colors, lines or light. Effective implementation of perspective to differentiate foreground, middleground and background will create a framing effect.

Motion is the flow or movement in certain directions by blurring the subject or use of directional lines (Dondis, 1973; Newcomb, 1984; Lowry, 1988; Rosauer,

1990; Taylor, 1960; White, 1980). Moving objects are never static on the retina. Motion is related to the rhythmic flow of shapes, lines and colors in space.

Sequence is the coming of one item or object after another. Succession is the order in which something occurs (Dondis, 1973; Faruque, 1984; Lowry, 1988; Nelson, 1983; Rosauer, 1990; White, 1980). A group of pictures together analyze an action or send a message. We complete an action in our minds as we experience a whole, and not a part.

Juxtaposition is the act of putting elements of a composition side by side (Dondis, 1973; Newcomb, 1984; Nelson, 1983; Rosauer, 1990; Taylor, 1960; White, 1980). The positioning of the elements should catch the viewer's attention and direct toward important details of subject, location and time. Line, space and form are the primary tools to be manipulated in contrast or comparison to each other.

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